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*The LACE and HOSIERY TRADES of NOTTINGHAM.**By WILLIAM FELKIN, Esq., F.L.S., F.S.S.*

[Read before Section F, British Association, Nottingham, August, 1866.]

THE progress of the town and suburbs of Nottingham in population and material wealth during this century has been much advanced by the increase of the hosiery and lace manufacturers of the place. In regard to the population of Nottingham, from the figures which appear in the population returns, much misconception prevails. Nottingham there appears to have a population of about 75,000, that is within the limits of the municipal borough only; while including the suburban parishes, which are practically parts of Nottingham, there are about 150,000 in all. It has risen from 35,000, the number in 1811.

I.

The following account of the machine-wrought lace trade in 1865, is based on a census made by Mr. Birkin and Mr. Heymann in 1862, of the machinery in the business, and given by the former in his report to Class 24 in the London Exhibition of that year. At that time there were 1,797 circular machines making bobbin net; of these 200 were at Tiverton, 100 at Barnstaple, 360 at Chard, 500 in Derbyshire, and 700 in and near Nottingham. Also 1,588 levers, 125 traverse warps, 42 pushers, all in Nottingham and its neighbourhood, making a total, with 353 standing, of 3,552 bobbin net, and 400 warp lace frames. Of these 2,149 were making silk lace, and 1,450 cotton lace. There were employed on plain net 1,442, and on fancy 2,157, the latter being closer imitations of cushion lace than ever before made. Although since 1862 there have occurred great fluctuations in demand, and the prices of both silk and cotton materials have advanced full 75 per cent., the amount of machinery and employment was in 1865 about the same as 1862. The entire production continues to be finished and sold in Nottingham, except that made at Tiverton, which is of silk, and sold in London.

II.

The approximate number of hands employed in 1865 is calculated upon the account taken by the writer recently of the hands actually engaged in making and finishing the production of lace from a large body of bobbin net machines. These, for the whole body of the lace machinery, may be thus stated:—900 men employed in 180 shops for

making machines, bobbins, carriages, points, guides, combs, needles, &c., at average wages of 33s. a-week; 10,300 men and youths at work in 130 larger factories and in lesser machine shops, 1,800 of whom may earn 16s., 5,000 25s., and 3,500 first-class levers' hands 35s. a-week on an average. These all work alternate shifts of four and five hours each, in the entire day of eighteen hours during which the engine is going. 4,200 boys clearing, winding, threading bobbins, 5s. 500 women filling bobbins and overlooking, 12s. 15,000 brown net menders, who usually receive nets from factories, and free them from foul or uneven threads. It is generally supplementary labour to household work, by which 4s. to 8s. may be gained, averaging 5s. a-week. 300 men, warpers, 25s.; 300 men, moulders, founders, and superintendents of machinery, 35s.; 60 carpenters, 30s.; 360 porters, 17s.; 120 carters, 20s.; 90 watchmen, &c., 20s.; 260 steam engineers, 22s.; 150 bleachers, 30s.; 100 male dressers of lace, 8s. to 30s.; 900 female dressers, 10s.; 1,000 female white menders, 12s.; 500 female lace folders, 10s.; 1,000 paper box makers of both sexes, 7s.; 450 warehouse women, 13s.; 250 female overlookers, 15s.; 100 draftsmen and designers, 40s.; 1,300 warehousemen and clerks taking salaries.

III.

There are employed in each finishing lace warehouse from 6 to 600 females, as the size and nature of the business may require. The number cannot be known except by actual census. They are taken from out-door hands in brown mending and other employments on lace. The hours are 8 A.M. to 6 or 7 P.M., and the wages are about 9s. on an average; overtime is paid for. The kinds of work must be seen to be understood, but are in general more wearisome than heavy. In some of the factories and work-rooms, in lace warehouses, and in dressing-rooms, the heat is sometimes oppressive. In general, ventilation is provided for, but hands do not always care to make use of it.

IV.

There is a far greater number of females employed, sometimes from a too early age, in the houses of "mistresses," often their own mothers, upon drawing, scolloping, carding, &c., processes light and simple enough, upon goods which have been obtained from finishing houses. These young people must exercise care and cleanliness on the articles, or they would be spoilt. When returned to the warehouse, the mistress receives a price, out of which she takes a portion for her labour, risk of damage, fire, light, house room, &c. Some of these persons employ as many as twenty young girls. The total number cannot be known accurately except by census. It being

considered domestic employment, they are not under registration or visitation, except upon complaint made on sanitary grounds. A great improvement has been going on in regard to the age at which these children begin to do this kind of work, and the hours of their daily labour. The change dates from Mr. Grainger's report on this important subject in 1844.

V.

The remaining department of female labour in connection with the machine lace trade, is that of embroiderers with hook or needle, tambourers, or lace runners, once amounting to 150,000, now reduced to a sixth of that number. Their average weekly earnings in 1836 was 4s.; now it is doubled, and more for the better kinds of work. As fast as the improved machinery produced figured work, nearly finished on the machines ready for sale, the lace embroiderers were cast aside. About 1840 an immigration set into Nottingham from all the districts within fifty miles, to supply the increasing warehouse and out-door female labour required in both the lace and hosiery trades. There has thus been added to the already preponderating female population of the place, 13,000 within the last twenty-six years. In these three classes it is computed there are from 90,000 to 100,000 females, which, added to the 38,000 above enumerated, makes a total of about 135,000 employed in the lace trade of Nottingham in 1865. The materials worked up cost about 1,715,000*l.*; the wages and profits amounted to 3,415,000*l.* or thereabouts; and the net returns may be stated at 5,130,000*l.*

VI.

In the hosiery business of Nottingham, there were at work in 1865 11,000 narrow hand machines, employing domestically 7,500 men and 3,500 women and youths, at wages from 6s. to 26s., averaging, by the statements of the hands themselves, 10s. 6*d.* weekly; also 4,250 wide hand machines, likewise domestically employing 4,250 men, from 10s. to 30s., averaging, according to the workmen's statement, 15s. weekly wages. These 15,250 hand frames were placed in 4,620 shops, in eighty parishes spread over the county of Nottingham. The entire average wages of 42,000 frames at work throughout the whole of the hosiery trade in 1844 was about 6s. a-week only. These two classes of Nottinghamshire hand machines, it is computed, give employment to about 20,000 women and girls as winders and seamers, earning 4s. each on an average. There are about 1,000 wide power rotary frames, employing 700 men, at from 20s. to 32s.; and about 16,000 girls and women, seamers and winders, on an average of 5s. weekly. There are about 1,200 sets of circular round power frames improved, employing 500 men and 500 youths,

at from 12s. to 35s. weekly; and 1,000 women, getting 12s. to 20s. weekly wages. The winders, cutters, menders, and others attached to these are about 11,000 women and girls, averaging 7s. to 12s. a-week. And there are about 400 warp machines making hosiery by power, employing 400 men, at 14s. to 35s.; and 200 youths, at 12s. to 20s.; besides 400 warpers, &c. (men), gaining about 25s.; and also 2,000 women and girls, stitching, &c., at 8s. a-week on an average. It is probable that there are 2,000 men employed in bleaching, dyeing, &c., and as porters, &c., at 20s. to 35s. weekly; besides 5,000 menders, folders, &c., working in warehouses, at from 8s. to 12s. weekly. To these must be added the warehousemen and clerks in eighty establishments for finishing and sale of goods in Nottingham. The Nottingham hosiery business is now believed to be giving employment to about 17,000 males and 44,000 females—together 61,000 workpeople. The estimated returns amounted in 1865 to about 3,000,000*l*.

VII.

The two staple trades of Nottingham, therefore, distributed in returns an amount of somewhat more than 8,000,000*l*. sterling last year, and furnished, in the aggregate, employment to nearly 200,000 workpeople.

VIII.

The hosiery hand frames here stated, were enumerated throughout the whole trade by my census in 1844; and the results are given with much minuteness in a paper read in this Section at the York Meeting of the British Association, where the terrible details of suffering then, and for forty years previously, endured, caused much interest and sympathy. Happily the state of things then described is now entirely changed, and the labour of the stocking maker being in larger demand than the supply, both employed and employer are enjoying an amount of prosperity never before realised, but which, we hope, may be long continued.

IX.

It will be an explanation of some interest to those who are strangers to the processes of these trades, to state that the hand-knitter of a stocking, if assiduous and clever, will knit 100 loops in a minute; and that Lee, on his first machine, made 1,000 of worsted, and on his second 1,500 loops of silk per minute. The visitor may now see made on the round frame, patented by Brunel in 1816, but since modified and improved, without any effort of the attendant but to supply yarn, 250,000 loops of the finest textures made, in various colours, per minute, with safety; an advance of 2,500-fold upon the

hand-knitter. Also, that while a pillow-lace maker can form five meshes per minute by her skilful and pliable fingers, Heathcoat, in his first essay upon his bobbin net machine, made 1,000, and, before the expiration of his patent, 10,000 of these meshes per minute; a man sitting to overlook his machine now, will watch its movements producing 50,000 meshes per minute—an increase of 10,000-fold on the cushion labourer's arduous and painstaking task. The mathematical nicety of the construction of each of these machines necessary to their secure working; the beautiful simplicity of the looping stocking-frames, contrasted with the complexity and rapidity of movement through confined spaces of the thousands of bobbins and carriages, in the mesh-making and embroidering bobbin net machines, will be found to surpass the greater part of the machinery employed in any other manufacture whatever.

X.

Two or three particular points in connection with the present operations of these trades will interest this Section. A hundred years ago almost all stockings were widened and narrowed on the frame, as they had been by hand knitting, so as to fit the leg and foot exactly with neatness and comfort to the wearer. These were called full-fashioned hose. Seventy or eighty years ago the practice of making goods straight down in the leg first began; these were called *spurious* goods. From that time till 1845 Parliament was on several occasions informed that this practice caused distress, and applied to to declare this mode of making stockings illegal; but these petitions were without legislative result. Brunel's round frame makes knitted sacks without fashion, and the round web is shaped by scissors and sewn up by stitching machines or hand. One head will produce weekly thirty dozen of women's hose, sold at 3*d.* to 6*d.* a pair. At first the manufacture of these goods was hateful to the greater portion both of masters and men. So far, however, from the trade being ruined by them, it has become better than for a century past, in every branch. No doubt very many minds have been at work to produce this result; by their efforts we are clothing the feet of millions of people, who twenty years ago knew nothing of the use of stockings; these will in all probability prove precursors of demand for the better and more costly articles. At least 30,000 persons are employed by these round frames.

XI.

In the working of power lace machines, there is still the anomaly of eighteen hours' continued working of the engine in the midland factories. The women and children are now withdrawn from night labour. It is more than questionable whether the natural hours of

adult male labour might not, if universally adopted, result in, at least, equal advantage to the owners of these machines, costly as they are, yet working to little profit, and conduce greatly to the comfort and morality of the workmen and their families.

XII.

In conclusion, the condition of the children, probably not much fewer than 40,000 employed by mistresses, and the circumstances attending such numbers being confined so many hours in rooms not intended for workshops, would seem to call for authorised inspection, and, I think, for registration also. The evidence taken by Mr. White, a sub-commissioner, in 1863, upon the subject of the employment of children in these trades, and his report thereon, are full of important matter; deserving of early practical notice, with a view not only to these young people working under circumstances more favourable to their health and morals, but also to their obtaining a sound education; which, under existing arrangements, is for the most part out of the question.
